

AMENDMENTS TO THE CLAIMS:

Please cancel claims 15 and 25, without prejudice or disclaimer of their subject matter, and amend claims 14, 16, and 24, as indicated below. This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1.-13. (Cancelled)

14. (Currently Amended) A method for selecting the emission wavelength of a tuneable laser having an external-cavity defining a plurality of cavity modes, wherein selecting occurs by means of a tuneable mirror that comprises a diffraction grating and a planar waveguide optically interacting with said diffraction grating, the diffraction grating and the planar waveguide forming a resonant structure, the tuneable mirror further comprising a light transmissive material having an index of refraction that varies in response to an electric field applied to the light transmissive material, making the tuneable mirror electrically tuneable, comprising the steps of:

emitting a light beam by a gain medium to the external cavity;

applying an alternating voltage of an amplitude to the light transmissive material of the tuneable mirror at a frequency f_A , thereby selecting a resonance wavelength of the resonance structure and thereby modulating in amplitude the light beam reflected or transmitted by the tuneable mirror; and

aligning the resonance wavelength of the tuneable mirror to at least one of the cavity modes by analysing the modulated component of the light beam reflected or transmitted by the tuneable mirror,

wherein the step of aligning the resonance wavelength is carried out by changing the amplitude of the voltage applied to the tuneable mirror so as to minimise the amplitude of the modulated component of the light beam either reflected by the tuneable mirror or transmitted through the tuneable mirror.

15. (Cancelled)

16. (Currently Amended) The method as in claim [[15]]14, wherein the amplitude modulation of the light beam reflected by or transmitted through the tuneable mirror is controlled to be not larger than $\pm 2\%$.

17. (Previously Presented) The method as in claim 16, wherein the amplitude modulation of the light beam reflected by or transmitted through the tuneable mirror is controlled to be not larger than $\pm 1\%$.

18. (Previously Presented) The method as in claim 14, wherein the analysed modulated component is at frequency f_A .

19. (Previously Presented) The method as in claim 14, wherein the analysed modulated component is at frequency $2f_A$.

20. (Previously Presented) The method as in claim 14, wherein selecting by means of the tuneable mirror comprises introducing a filtering element between the gain medium and the

tunable mirror, a spectrally selective loss element defining at least a pass band comprising the at least one of the cavity modes.

21. (Previously Presented) The method as in claim 20, wherein the spectrally selective loss element is a grid element defining a plurality of pass bands substantially aligned with corresponding channels of a wavelength grid.

22. (Previously Presented) The method as in claim 20, further comprising the step of aligning a pass band of the spectrally selective loss element to the at least one of the cavity modes by adjusting the injection current of the gain medium so as to maximize the laser output power.

23. (Previously Presented) The method as in claim 22, wherein the step of aligning a pass band of the spectrally selective loss element to the at least one of the cavity modes and the step of aligning the resonance wavelength of the tuneable mirror to the at least one of the cavity modes are carried out sequentially.

24. (Currently Amended) [[The]] A tuneable laser module configured to emit output radiation on a single longitudinal mode at a laser emission wavelength, comprising:
an external cavity defining a plurality of cavity modes;
a gain medium to emit a light beam into the external cavity;
a tuneable mirror comprising a diffraction grating and a planar waveguide optically interacting with said diffraction grating, the diffraction grating and the planar waveguide forming

a resonant structure, the tuneable mirror further comprising a light transmissive material having an index of refraction that varies in response to an electric field applied to the light transmissive material, making the tuneable mirror electrically tuneable in response to an alternating voltage of an amplitude and frequency, so as to select a resonance wavelength and so as to modulate in amplitude the light beam reflected or transmitted by the tuneable mirror; and

a controlling device to align the resonance wavelength of the tuneable mirror to at least one of the cavity modes by analysing a modulated component of the light beam reflected or transmitted by the tuneable mirror,

wherein the controlling device carries out a function of analysing the modulated component of the light beam either reflected by the tuneable mirror or transmitted through the tuneable mirror by changing the amplitude of the voltage applied to the tuneable mirror so as to minimise the amplitude of the modulated component of the light beam.

25. (Cancelled)

26. (Previously Presented) The tuneable laser module according to claim 24, wherein the controlling device is included in an electronic circuit card.